

Sub Q²

1. A method for delivering enhanced programming content to a receiver, the receiver being configured to display the enhanced programming content, the method comprising:

a step for creating a schema document, the schema document comprising at least one of (i) a trigger data structure, (ii) an announcement data structure, (iii) a package data structure, (iv) a timeline data structure, and (v) a carousel data structure;

a step for accessing the schema document, the schema document comprising at least one instruction for the delivery of enhanced programming content;

a step for analyzing the at least one instruction to retrieve the timeline data structure, the timeline data structure comprising an event controlling the delivery of the enhanced programming content to the receiver; and

a step for delivering the enhanced programming content to the receiver when the event occurs.

2. A method as recited in claim 1, further comprising:

(a) a step for viewing television programming deliverable to the receiver; and

(b) in response to viewing the television programming, a step for creating the schema document associated with the television programming.

3. A method as recited in claim 1, wherein the step for accessing the schema document comprises the step of retrieving the schema document from a repository containing a plurality of schema documents.

1 4. A method as recited in claim 1, wherein the step for creating the schema
2 document comprises a step for creating the schema document with an authoring tool.

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4 5. A method as recited in claim 1, wherein the enhanced programming content
5 comprises at least one of an announcement element, a trigger element, and a package element.

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7 6. A method as recited in claim 1, wherein the delivering step comprises
8 delivering the enhanced programming content in an order selected from the group consisting
9 of a sequential order and an asynchronous order.

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11 7. A method as recited in claim 1, wherein the delivering step comprises
12 synchronizing the enhanced programming content with the television programming.

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14 8. A method as recited in claim 1, wherein the delivering step comprises
15 delivering the enhanced programming content with a communication protocol.

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17 9. A method as recited in claim 8, wherein the communication protocol is
18 selected from the group consisting of (i) a transport A protocol and (ii) a transport B protocol.

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20 10. A method as recited in claim 1, wherein the delivering step comprises
21 delivering the enhanced programming content before a deliver-by time, defined in the schema
22 document.

1 11. A method as recited in claim 1, wherein the delivering step comprises
2 delivering the enhanced programming content by a start time defined in the schema
3 document.

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5 12. A method as recited in claim 1, wherein the timeline data structure functions as
6 the carousel data structure.

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8 13. A method as recited in claim 1, wherein the carousel data structure functions as
9 the timeline data structure.

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11 14. A method as recited in claim 1, wherein the delivery step comprises:

12 (a) a step for delivering an announcement signal comprising the
13 announcement data structure to the receiver, the announcement signal identifying the
14 availability of enhanced programming content to the receiver;

15 (b) a step for delivering a package comprising the package data structure to
16 the receiver, the package identifying the enhanced programming content;

17 (c) a step for delivering a trigger signal comprising the trigger data
18 structure to the receiver, the receiver notifying the viewer of the availability of
19 enhanced programming content; and

20 (d) in response to a selection by the viewer to receive the enhanced
21 programming content, a step for displaying the enhanced programming content to the
22 viewer.

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15. A method as recited in claim 14, wherein the package comprises at least one file containing the enhanced programming content.

16. A method as recited in claim 14, wherein the package comprises at least one link to the enhanced programming content.

17. A method as recited in claim 14, wherein the trigger comprises at least one link to the enhanced programming content identified in the package.

18. A method as recited in claim 14, wherein the at least one user action comprises the step of accepting a notification displayed to the viewer of the availability of enhanced programming content.

1 19. A computer-readable medium having a plurality of data fields stored on the
2 medium and representing data structures for delivering enhanced programming content to a
3 receiver, comprising:

4 (a) a first data field containing data representing the availability of
5 enhanced programming content;

6 (b) a second data field containing data representing the location of the
7 enhanced programming content;

8 (c) a third data field containing data representing at least one trigger, the at
9 least one trigger controlling the delivery of the enhanced programming content; and

10 (d) a fourth data field containing data representing a timeline, the timeline
11 controlling the delivery of the first data field, the second data field, and the third data
12 field to the receiver.

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14 20. A computer-readable medium as recited in claim 19, wherein the first data
15 field comprises an announcement, the announcement comprising an announcement data
16 structure.

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18 21. A computer-readable medium as recited in claim 19, wherein the second data
19 field comprises a package, the package comprising a package data structure.

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21 22. A computer-readable medium as recited in claim 21, wherein the package
22 comprises at least one of (i) a file of enhanced programming content and (ii) a link to a file of
23 enhanced programming content.
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23. A computer-readable medium as recited in claim 19, wherein the third data field comprises a trigger, the trigger comprising a trigger data structure.

24. A computer-readable medium as recited in claim 19, wherein the timeline controls at least one of (i) a starting time for delivering the enhanced programming content to the receiver and (ii) a stopping time for delivering the enhanced programming content to the receiver.

25. A computer-readable medium as recited in claim 19, wherein the timeline comprises a time, the time defining when delivery of the enhanced programming content to the receiver is to be completed.

26. A computer-readable medium as recited in claim 19, wherein the timeline acts as a carousel.

1 27. A method for delivering enhanced programming to a receiver as defined by a
2 schema document, the method comprising:

3 a step for creating a schema document comprising at least one of (i) a trigger
4 data structure, (ii) an announcement data structure, (iii) a package data structure, (iv) a
5 timeline data structure, and (v) a carousel data structure;

6 a step for retrieving the schema document;

7 a step for generating a timeline from the schema document, the timeline
8 defining the schedule for sending the at least one of the data structure to the receiver;
9 and

10 a step for delivering the at least one of the announcement, the trigger, and the
11 package to the receiver following the schedule.

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13 28. A method as recited in claim 27, further comprising the step of verifying the
14 schema document against a stored verification document.

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16 29. A method as recited in claim 27, further comprising the step of delivering
17 programming to the receiver, the programming containing at least one of (i) the
18 announcement, (ii) the trigger, and (iii) the package.

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20 30. A method as recited in claim 27, wherein the document comprises an XML
21 document.

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31. A method as recited in claim 27, wherein the generating step comprises
defining at least one element for each announcement, trigger, and package.

1 32. A system for providing television programming and enhanced programming
2 content that is capable of being displayed on a variety of receivers, the system comprising:

3 (a) an interactive module configured to create at least one schema
4 document, the schema document being configured to define the enhanced
5 programming content in a standardized configuration, the schema document
6 comprising at least one of (i) a trigger data structure, (ii) an announcement data
7 structure, (iii) a package data structure, (iv) a timeline data structure, and (v) a
8 carousel data structure;

9 (b) an encoder module, in communication with the interactive module,
10 configured to encode the enhanced programming content, in response to the
11 configuration of the timeline data structure, onto a communication line containing the
12 television programming; and

13 (c) a receiver module, in communication with the encoder module, for
14 receiving the enhanced programming content and displaying the enhanced
15 programming content to a viewer.

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17 33. A system as recited in claim 32, wherein the interactive module comprises:

18 (a) a data storage module configured to store the at least one schema
19 document; and

20 (b) an application module configured to retrieve the at least one schema
21 document and the enhanced programming content defined in the at least one schema
22 document.
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34. A system as recited in claim 32, wherein the interactive module comprises:

(a) an interface module configured to receive requests for modifications to the schema document;

(b) a stream module configured to modify the schema document following the requests received by the interface module; and

(c) a send module configured to manipulate the schema document and the enhanced programming content for delivery to the receiver.

35. A system as recited in claim 32, wherein the interactive module comprises:

(a) an interface module configured to receive requests to generate a schema document, the schema document defining the enhanced programming content deliverable with the television programming;

(b) a stream module configured to generate the schema document in response to the requests received by the interface module; and

(c) a send module configured to deliver the enhanced programming content to the receiver module.

36. A system as recited in claim 32, wherein the communication line comprises a plurality of different channels.

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37. A system as recited in claim 36, wherein the communication line comprises a first channel configured to transport the television programming to the receiver and a second channel configured to transport the enhanced programming to the receiver, the first channel and the second channel being different channels.

1 38. A computer product for implementing a method for providing enhanced
2 programming content defined within a schema document to a viewer of a receiver module,
3 comprising:

4 a computer readable medium carrying computer-executable instructions for
5 implementing the method where the computer-executable instructions comprise:

6 a step for retrieving a schema document, the schema document comprising at
7 least one instruction for the delivery of enhanced programming content;

8 a step for analyzing the at least one instruction to retrieve a timeline for the
9 deliver of the enhanced programming content to the receiver; and

10 in response to the timeline, a step for delivering the enhanced programming
11 content to the receiver for display to the viewer.

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13 39. A method for delivering enhanced programming content to a receiver that
14 displays the enhanced programming content to a viewer, the method comprising:

15 an act of retrieving a schema document, the schema document comprising at
16 least one instruction for the delivery of enhanced programming content;

17 an act of analyzing the at least one instruction to retrieve a timeline for the
18 deliver of the enhanced programming content to the receiver; and

19 in response to the timeline, an act of delivering the enhanced programming
20 content to the receiver for display to the viewer.